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**Patent/TM/App/Serial #** 10,607,061

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Chu et al.

Confirmation No.: 3580

Patent No.: 6,804,966

Serial No.: 10/607,061

Issue Date: 10/19/2004

Examiner: Chen Wen Jiang

Title: THERMAL DISSIPATION ASSEMBLY EMPLOYING  
THERMOELECTRIC MODULE WITH MULTIPLE ARRAYS OF  
THERMOELECTRIC ELEMENTS OF DIFFERENT DENSITIES

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Kevin P. Radigan  
Kevin P. Radigan  
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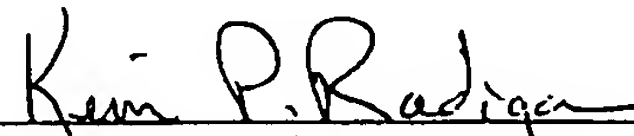
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Respectfully submitted,

  
Kevin P. Radigan  
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Registration No. 31,789

Dated: October 26, 2004

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/607,061      | 06/26/2003  | Richard C. Chu       | POU902091US1        | 3580             |

**TITLE OF INVENTION:** THERMAL DISSIPATION ASSEMBLY EMPLOYING THERMOELECTRIC MODULE WITH MULTIPLE ARRAYS OF THERMOELECTRIC ELEMENTS OF DIFFERENT DENSITIES

| APPLN. TYPE    | SMALL ENTITY | ISSUE FEE | PUBLICATION FEE | TOTAL FEE(S) DUE | DATE DUE   |
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| nonprovisional | NO           | \$1330    | \$300           | \$1630           | 09/10/2004 |

| EXAMINER        | ART UNIT | CLASS-SUBCLASS |
|-----------------|----------|----------------|
| JIANG, CHEN WEN | 3744     | 062-003700     |

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(12) **United States Patent**  
Chu et al.

(10) Patent No.: **US 6,804,966 B1**  
(45) Date of Patent: **Oct. 19, 2004**

(54) **THERMAL DISSIPATION ASSEMBLY  
EMPLOYING THERMOELECTRIC MODULE  
WITH MULTIPLE ARRAYS OF  
THERMOELECTRIC ELEMENTS OF  
DIFFERENT DENSITIES**

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(21) Appl. No.: **10/607,061**

(22) Filed: **Jun. 26, 2003**

(51) Int. Cl.<sup>7</sup> ..... **F25B 21/02; F25D 23/12;  
H05K 7/20**

(52) U.S. Cl. .... **62/3.7; 62/259.2; 361/688;  
361/687**

(58) Field of Search ..... **62/3.7, 259.2,  
62/3.2, 3.6; 361/705, 690, 718, 676, 688,  
687, 689, 697; 165/104.21, 104.33, 80.3**

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**Kevin P. Radigan, Esq.;** Heslin Rothenberg Farley & Mesiti  
P.C.

(57) **ABSTRACT**

A thermoelectric assembly is provided for an electronic device, having a surface with a non-uniform thermal distribution between at least one first region and at least one second region, with the at least one first region having a higher heat flux than the at least one second region. The assembly includes at least one first area of thermoelectric elements and at least one second area of thermoelectric elements, which are configured to align over the at least one first region of higher heat flux, and the at least one second region, respectively, when the assembly is coupled to the device. The at least one first area of thermoelectric elements includes a greater density of thermoelectric elements than the at least one second area of thermoelectric elements for handling the higher heat flux.

**17 Claims, 3 Drawing Sheets**

